CLAIMS:

1. A network, comprising:

M devices such that $M^{3}1$, each device of the M devices having a real or virtual token counter that stores a token count of not less than zero, wherein an equation $M + S = K$ must be satisfied, wherein M is a variable that changes when devices join or leave the network, wherein S denotes the number of tokens in the network and is numerically equal to a summation of the token counts over the M devices, wherein K is a characteristic constant of the network having an integer value of at least 2 that is established upon creation of the network;

network rules, comprising a joining rule for effectuating a non-network device DJ joining the network and a leaving rule for effectuating a device DL of the M devices leaving the network; and

the network not including a server device for managing the number of devices in the network.

2. The network of claim 1, said joining rule requiring DJ to be connected to a device DX of the M devices and while DJ is connected to the device DX a joining protocol must be executed by which DX authenticates DJ and by which DJ authenticates DX, and if said authentications are established through said joining protocol then DJ is joined to the network if $S>0$ and the joining protocol adjusts the token counts of the M devices such that S is decremented by 1 and the number of devices M of the network is incremented by 1 so that said equation is satisfied upon the joining of DJ to the network, wherein if each of said authentications are not established then DJ is not joined to the network through the connection between DJ and DX.

3. The network of claim 2, wherein prior to the attempt by DJ to join the network the device DX has a token count CX of at least 1, and wherein upon the joining of DJ to the network said decrementing S by 1 is effectuated by decrementing the token count of DX by $1+\alpha$ and setting the token count of DJ to α, wherein α is a positive integer in the range of 0 £ α £ CX-1.

4. The network of claim 3, wherein CX =1, and wherein α=0.

5. The network of claim 3, wherein CX >1, and wherein α=0.

6. The network of claim 3, wherein CX >1, and wherein α=(CX-1)/2 rounded downward to the next lowest integer if (CX-1)/2 is not an integer.

7. The network of claim 2, wherein prior to the attempted joining of DJ the device DX has a token count CX of zero which bars DJ from joining the network through the connection between DJ and DX.

8. The network of claim 2, wherein prior to the attempted joining of DJ the device DX has a token count CX of zero and M>1, wherein during execution of the joining protocol DX is directly or indirectly connected to another device DXX of the M devices, wherein DXX has a token count of at least 1, and wherein upon the joining of DJ to the network said decrementing S by 1 is effectuated by decrementing the token count of DXX by 1 and setting the token count of DJ to zero.

9. The network of claim 1, said leaving rule requiring DL to be connected to a device DY of the M devices and while DL is connected to the device DY a leaving protocol must be executed by which DY authenticates DL and by which DL authenticates DY, and if said authentications are established through said leaving protocol then DL is deleted from the network and the leaving protocol adjusts the token counts of the remaining M-1 devices such that S is incremented by 1+CL wherein CL is the token count of DL and the number of devices M of the network is decremented by 1 so that said equation is satisfied upon the leaving of DL from the network, wherein if each of said authentications are not established then DL is not permitted to leave the network through the connection between DL and DY.

10. The network of claim 9, wherein upon the leaving of DL from the network said incrementing S by 1 is effectuated by incrementing the token count of DY by 1+CL.

11. The network of claim 9, wherein M>2 prior to the leaving of DL from the network, wherein upon the leaving of DL from the network said incrementing S by 1 is effectuated by incrementing the token count of DY and the token counts of another J devices of the M devices to which DY is directly or indirectly connected such that SJ+1 is incremented by 1+CL, and wherein SJ+1 denotes a summation of the token counts over DY and the J devices.

12. The network of claim 11, wherein the token count of DY and the token counts of J devices are individually incremented such that the resultant total token counts of DY and the J devices are approximately uniformly distributed among DY and the J devices.

13. The network of claim 11, wherein the token count of DY and the token counts of J devices are individually incremented such that the 1+CL tokens are approximately uniformly distributed among DY and the J devices.

14. The network of claim 11, wherein the token count of DY and the token counts of J devices are individually incremented such that the 1+CL tokens are randomly distributed among DY and the J devices.

15. The network of claim 1, wherein the network rules comprise a token redistribution rule which prescribes at least one condition that triggers a redistribution of the S tokens among the M devices, and wherein the token redistribution rule further prescribes an algorithm for effectuating said redistribution, and wherein the algorithm takes into account the condition that triggered the redistribution.

16. The network of claim 1, wherein none of the M devices are required to be connected to any other device of the M devices, and when a given device of the M devices connects with another device of the M devices then the given device and the another device must each execute a connection protocol verifying each other's authenticity.

17. The network of claim 1, wherein each device of the M devices has a memory for storing capability flags which are unique to each device, and wherein the joining protocol and leaving protocol each take into account at least one of said capability flags.

18. The network of claim 1, wherein each device of the M devices has a memory for storing a same network data structure that comprises network information that is not unique to any device of the M devices.

19. The network of claim 16, wherein the network data structure comprises a revocation list of rogue devices, wherein the joining protocol does not permit DJ to be joined to the network if DJ is on the revocation list.

20. The network of claim 1, wherein the device DL must destroy any stored content upon leaving the network.

21. The network of claim 1, wherein if DJ is joined to the network then the joining protocol provides DJ with an decryption key and provides DJ with an encryption key if DJ has a real token counter but does not provide DJ with said encryption key if DJ has a virtual token counter.

22. A method of joining a non-network device DJ to a network of devices, comprising: providing the network as comprising M devices such that M^31, each device of the M devices having a real or virtual token counter that stores a token count of not less than zero, wherein an equation $M + S = K$ must be satisfied, wherein M is a variable that changes when devices join or leave the network, wherein S denotes the number of tokens in the network and is numerically equal to a summation of the token counts over the M devices, wherein K is a characteristic constant of the network having an integer value of at least 2 that is established upon creation of the network, and wherein the network does not include a server device for managing the number of devices in the network; and attempting to join the device DJ to the network in accordance with a joining rule.

23. The method of claim 22, said joining rule requiring DJ to be connected to a device DX of the M devices and while DJ is connected to the device DX a joining protocol must be executed by which DX authenticates DJ and by which DJ authenticates DX, and if said authentications are established through said joining protocol then DJ is joined to the network if $S>0$ and the joining protocol adjusts the token counts of the M devices such that

S is decremented by 1 and the number of devices M of the network incremented by 1 so that said equation is satisfied upon the joining of DJ to the network, wherein if each of said authentications are not established then DJ is not joined to the network through the connection between DJ and DX.

24. The method of claim 23, wherein prior to said attempting DX has a token count CX of at least 1, and wherein upon the joining of DJ to the network said decrementing S by 1 is effectuated by decrementing the token count of DX by $1+\alpha$ and setting the token count of DJ to α, wherein α is a positive integer in the range of 0 £ α £ CX-1.

25. The method of claim 24, wherein CX =1, and wherein α=0.

26. The method of claim 24 wherein CX >1, and wherein α=0.

27. The method of claim 24, wherein CX >1, and wherein α=(CX-1)/2 rounded downward to the next lowest integer if (CX-1)/2 is not an integer.

28. The method of claim 23, wherein prior to said attempting DX has a token count CX of zero which bars DJ from joining the network through the connection between DJ and DX.

29. The method of claim 23, wherein prior to said attempting DX has a token count CX of zero and M>1, wherein during execution of the joining protocol DX is directly or indirectly connected to another device DXX of the M devices, wherein DXX has a token count of at least 1, and wherein upon the joining of DJ to the network said decrementing S by 1 is effectuated by decrementing the token count of DXX by 1 and setting the token count of DJ to zero.

30. The method of claim 22, wherein each device of the M devices has a memory for storing capability flags which are unique to each device, and wherein the joining protocol takes into account at least one of said capability flags.

31. The method of claim 22, wherein each device of the M devices has a memory for storing a same network data structure that comprises network information that is not unique to any device of the M devices.

32. The method of claim 31, wherein the network data structure comprises a revocation list of rogue devices, wherein the joining protocol does not permit DJ to be joined to the network if DJ is on the revocation list.

33. The method of claim 22, wherein if DJ is joined to the network then the joining protocol provides DJ with an decryption key and provides DJ with an encryption key if DJ has a real token counter but does not provide DJ with said encryption key if DJ has a virtual token counter.

34. A method by which a device DL leaves a network, comprising:
providing the network as comprising M devices such that $M^{3}1$, device DL being one of the M devices, each device of the M devices having a real or virtual token counter that stores a token count of not less than zero, wherein an equation M + S = K must be satisfied, wherein M is a variable that changes when devices join or leave the network, wherein S denotes the number of tokens in the network and is numerically equal to a summation of the token counts over the M devices, wherein K is a characteristic constant of the network having an integer value of at least 2 that is established upon creation of the network, and wherein the network does not include a server device for managing the number of devices in the network; and
attempting by the device DL to leave the network in accordance with a leaving rule.

35. The method of claim 34, said leaving rule requiring DL to be connected a device DY of the M devices and while DL is connected to the device DY a leaving protocol must be executed by which DY authenticates DL and by which DL authenticates DY, and if said authentications are established through said leaving protocol then DL is properly deleted from the network and the leaving protocol adjusts the token counts of the remaining M-1 devices such that S is incremented by 1+CL wherein CL is the token count of DL, and the number of devices M of the network is decremented by 1 so that said equation is satisfied upon the leaving of DL from the network, wherein if each of said authentications are not

established then DL is not permitted to leave the network through the connection between DL and DY.

36. The method of claim 35, wherein upon the leaving of DL from the network said incrementing S by 1 is effectuated by incrementing the token count of DY by 1+CL.

37. The method of claim 35, wherein M>2 prior to the leaving of DL from the network, wherein upon the leaving of DL from the network said incrementing S by 1 is effectuated by incrementing the token count of DY and the token counts of another J devices of the M devices to which DY is directly or indirectly connected such that SJ+1 is incremented by 1+CL, and wherein SJ+1 denotes a summation of the token counts over DY and the J devices.

38. The method of claim 37, wherein the token count of DY and the token counts of J devices are individually incremented such that the resultant total token counts of DY and the J devices are approximately uniformly distributed among DY and the J devices.

39. The method of claim 37, wherein the token count of DY and the token counts of J devices are individually incremented such that the 1+CL tokens are approximately uniformly distributed among DY and the J devices.

40. The method of claim 37, wherein the token count of DY and the token counts of J devices are individually incremented such that the 1+CL tokens are randomly distributed among DY and the J devices.

41. The method of claim 34, wherein each device of the M devices has a memory for storing a same network data structure that comprises network information that is not unique to any device of the M devices.

42. The method of claim 34, wherein the device DL must destroy any stored content upon leaving the network.